MINISTAT

Swiss based Trafag is a leading international supplier of high quality sensors and monitoring instruments for measurement of pressure and temperature.

Applications

- Railways
- Machine tools
- HVAC
- Refrigeration
- Process technology

Features

- Short response time
- Protection IP54
- Electrical connection on terminal screw

05/2024
Data sheet H72172q
Subject to change

Technical Data			
Designation of application	Remote sensing thermostat	Switching differential	Adjustable / not adjustable
Measuring range	-30°C ... +40°C to +70°C ... +350°C	Repeatability	± 0.5 % FS typ.
Output signal	Floating change-over contact	Approval / conformity	EN60730-1/ EN60730-2-9: Typ 2.B.H

Trafag sensors & controls
Switzerland

Industriestrasse 11
8608 Bubikon

+41 44 922 32 32
www.trafag.com

trafag
sensors controls

Ordering information/type code

		XXX	XX	XX	XXX	XX	XXXXXXXXX	XX	XX
Custom build code	External adjustment	**624**							
	Internal adjustment	**634**							
Microswitch	Small switching differential, not adjustable [6]		**10**						
	Average switching differential, not adjustable [6]		**11**						
	With gold plated contacts, switching differential not adjustable		**21**						
	Adjustable large switching differential		**24**						
	Adjustable standard switching differential		**25**						

Range

Range [°C]	Sensor max. [°C]		Range [°C]	Sensor max. [°C]	
-30 ... 40	45	**01**	5 ... 95	105	**20**
-10 ... 25 [4] [6]	60	**07**	20 ... 110 [4]	115	**23**
0 ... 35	70	**09**	20 ... 150	165	**31**
10 ... 45 [4] [6]	85	**11**	20 ... 230	250	**24**
10 ... 80 [4] [6]	100	**13**	40 ... 300 [4]	330	**53**
-10 ... 35 [4]	70	**94**	70 ... 350 [4]	380	**54**
-10 ... 80 [4]	85	**95**			

Sensor [1]	See table "Ordering-no. for sensors"				**XXX**				
Fixing [2]	Nut M10 (for remote sensing version)					**10**			
	Grubscrew locked, lateral (direct mounting version) [5]					**12**			
	Cap nut (for direct mounting version) [5]					**14**			
	Angle bracket (for remote sensing version)					**17**			
	Grubscrew locked with spacer (cooling element) (for direct mounting version)					**18**			
	Mounting bracket (for remote sensing version)					**19**			
Protection tube	See data sheet www.trafag.com/H72114 and www.trafag.com/H72163						**XXXX.XXXX**		
Accessories	Switchpoint locking [4]							**15**	
	Switchpoint fixed and sealed upon customer's request [4]							**88**	
	Switchpoint preset upon customer's request, no guarantee on switching accuracy [4]							**83**	
	Switchpoint adjustment please indicate when ordering: - Switchpoint [°C] - Increasing or decreasing								
	Capacitor over Pin 1-2 [6]							**12**	
	Capacitor over Pin 1-3							**13**	
	Capacitors over Pin 1-2 / 1-3 [6]							**23**	
	Railway version IEC 61373, category 2							**28**	
	Capillary tube protection: Flexible metal tube, brass nickel-plated							**90**	
	Capillary tube protection: Flexible metal tube 1.4301 (AISI 304)							**91**	
	Capillary tube protection: PVC tube							**92**	
Capillary tube length	Capillary tube length up to 5000 mm (no specification required for direct mounting on protection tube) **L=XXXX** [3]								

[1] See data sheet www.trafag.com/H72114 and www.trafag.com/H72163
[2] See data sheet www.trafag.com/H72106
[3] Overlengths upon request
[4] Only with type 634 internal adjustment
[5] Media max. 150°C in continuous operation
[6] Do not use for new designs. Will be phased out in 2024.

Ordering no. for sensors

		Sensor material		
Range	Sensor-Ø	Stainless steel	Copper	Copper nickel plated
01, 07, 09, 11, 13, 17	4.7 mm		412 [1]	413 [1]
	7.0 mm	421	422	423 [1]
	9.0 mm		432	433 [1]
94, 95, 20, 23	4.7 mm	311 [1]	312 [1]	313 [1]
	7.0 mm	321	322	323 [1]
	9.0 mm	331 [1]	332	333 [1]
31	4.7 mm	111 [1]	112 [1]	113 [1]
	7.0 mm	121	122	123 [1]
	9.0 mm	131 [1]	132	133 [1]
24, 53, 54	4.7 mm	011 [1]	012 [1]	013 [1]
	7.0 mm	021	022	023 [1]
	9.0 mm	031 [1]	032	033 [1]

[1] Do not use for new designs. Will be phased out in 2024.

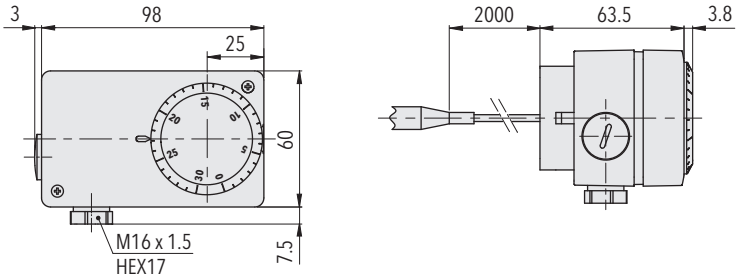
Standard products (extra short lead time)

Product No.	Type Code	Sensor material	Temperature range [°C]	Switching differential [°C]	Sensor max. [°C]
M35	624 2509 422 19	Copper	0 ... +35	0.7 ... 10 (adjustable)	70
M40	624 2501 422 19	Copper	-30 ... +40	0.7 ... 10 (adjustable)	45
M95	624 2520 322 19	Copper	+5 ... +95	2 ... 12 (adjustable)	105
M150	624 2531 122 19	Copper	+20 ... +150	2.5 ... 16 (adjustable)	165
M230S	624 2524 021 19	1.4435 (AISI316L)	+20 ... +230	3 ... 32 (adjustable)	250
M350S	624 2554 021 19	1.4435 (AISI316L)	+70 ... +350	4 ... 40 (adjustable)	380
MS35	634 2509 422 19	Copper	0 ... +35	0.7 ... 10 (adjustable)	70
MS40	634 2501 422 19	Copper	-30 ... +40	0.7 ... 10 (adjustable)	45
MS95	634 2520 322 19	Copper	+5 ... +95	2 ... 12 (adjustable)	105
MS150	634 2531 122 19	Copper	+20 ... +150	2.5 ... 16 (adjustable)	165
MS230S	634 2524 021 19	1.4435 (AISI316L)	+20 ... +230	3 ... 32 (adjustable)	250
MS350S	634 2554 021 19	1.4435 (AISI316L)	+70 ... +350	4 ... 40 (adjustable)	380

Specifications		
Accuracy	Repeatability	± 0.5 % FS typ.
	Scale accuracy typ.	± 2 % FS typ.
	Switching differential	See table
	Switching point	Temperature compensated with bimetal switch lever
Environmental conditions	Ambient temperature	Range ≤ +45°C: -30°C ... +50°C Range +45°C ... +250°C: -30°C ... +70°C Range > + 250°C: -10°C ... +70°C (Important: Temperature at sensor may not exceed maximum sensor temperature)
	Storage temperature	Range ≤ +45°C: -30°C ... +50°C Range > +45°C: -30°C ... +85°C
	Protection	IP54
	Humidity	Max. 95 % relative
Mechanical data	Sensor housing	See ordering information
	Filling	Liquid
	Housing	PC/ABS-Blend V0
	Screwed cable gland	Polyamide (PA)
	Installation	any position
	Weight	~ 380 g
Microswitch	Rating	See table
	Resistance of insulation	> 2 MΩ
	Dielectric strength	U ≤ 250V: 1.45 kV U ≤ 500V: 2 kV terminal ground
	Life time (mechanical)	Microswitch 10/11/25: 20 Mio. cycles Microswitch 21: 0.5 Mio. cycles Microswitch 24: 0.3 Mio. cycles
Electrical connection	Cable gland	M16x1.5 Cable-Ø 4...9 mm
	Terminal screw	3 x 1 ... 2.5 mm²

Additional information		
Documents	Data sheet	www.trafag.com/H72172
	Instructions	www.trafag.com/H73624

Dimensions



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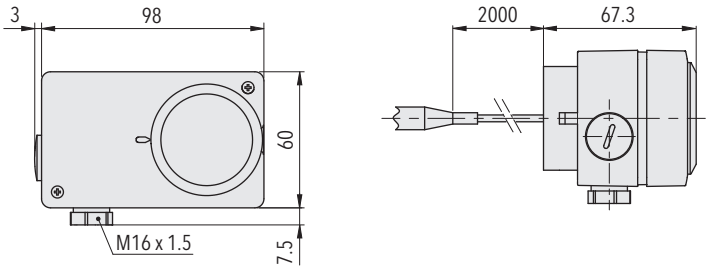

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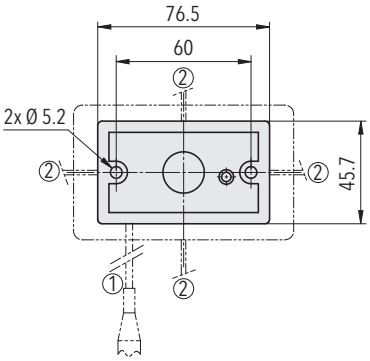

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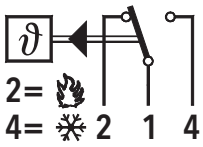
Switching differential typ.						
Measuring range	**[°C]**	–30 ... +40 –10 ... +25 0 ... +35 +15 ... +30 +10 ... +45 +10 ... +80	–10 ... +35 –10 ... +80 +5 ... +95 +20 ... +110	+20 ... +150	+20 ... +230	+40 ... +300 +70 ... +350
Microswitch 10: Switching differential not adjustable	**[°C]**	0.3	0.8	1	1.2	2
Microswitch 11/21: Switching differential not adjustable	**[°C]**	0.7	2	2.5	3	4
Microswitch 24: Switching differential adjustable	**[°C]**	4 ... 21	5.5 ... 26	7 ... 34	15 ... 65	18 ... 84
Microswitch 25: Switching differential adjustable	**[°C]**	0.7 ... 10	2 ... 12	2.5 ... 16	3 ... 32	4 ... 40

Electrical data switch			
		Rating Resistive Load (Inductive Load)	
Type	**Features**	**AC**	**DC**
10	Small switching differential, not adjustable	125 V, 10 (1.5) A 250 V, 10 (1.25) A	250 V, 0.2 (0.02) A 125 V, 0.4 (0.03) A 30 V, 2 (1) A 14 V, 15 (2.5) A
11	Average switching differential, not adjustable	125 V, 15 (1.5) A 250 V, 15 (1.25) A 500 V, 10 (0.75) A	250 V, 0.25(0.03) A 125 V, 0.5(0.05) A 30 V, 6 (1.5) A 14 V, 15 (1.5) A
21	Gold plated contacts, not adjustable	24 V, 0.1(0.1)A 12 V, 1 (1) A 5 V, 2 (2) A	24 V, 0.1(0.1)A 12 V, 1 (1) A 5 V, 2 (2) A
25	Adjustable standard switching differential	125 V, 15 (1.5) A 250 V, 15 (1.25) A 500 V, 10 (0.75) A	250 V, 0.25(0.03) A 125 V, 0.5(0.05) A 30 V, 6 (1.5) A 14 V, 15 (2.5) A
24	Adjustable large switching differential	125 V, 15 (1.5) A 250 V, 15 (1.25) A 500 V, 10 (0.75) A	250 V, 0.3 (0.2) A 125 V, 0.75 (0.4) A 30 V, 15 (1.5) A 14 V, 15 (1.5) A

Electrical connection



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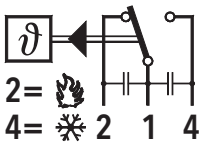

with accessory **23**